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EXAMINER	
DANIEL JR, WILLIE J	
ART UNIT	**PAPER NUMBER**
2617	

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,049	SHIMIZU ET AL.	
	Examiner	Art Unit	
	Willie J. Daniel, Jr.	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's amendment filed on 13 December 2005. **Claims 15-29** are now pending in the present application. This office action is made **Final**.

Claim Rejections - 35 USC § 112

2. The 112 rejections applied to the claims are withdrawn, as the proposed claim corrections are approved.

Claim Objections

3. Regarding **claims 22-27**, note that the use of *"protocols"* (for example, Bluetooth and 802.11), protocols and standards change over time, hence, it is inappropriate to have the scope of a claim change with time. Since organizations implementing standards meet regularly and have the authority to modify standards, any connection a claim may have to these standards may have varying scope over time. The other aspect arising from this is enablement. If the standard changes, the disclosure may no longer support the limitation. If the scope of the invention sought to be patented cannot be determined from the language of the claims, a 35 U.S.C. 112 second paragraph of rejection is appropriate (In re Wiggins, 179 USPQ 421).

   a. **Claim 22** recites the limitation(s) "...**mobile IP procedure**..." in line 3 of the claim, "...**predetermined radio access network standard**..." in line 5 of the claim, and "...**SRNC relocation procedure**..." in line 10 of the claim.

b. **Claim 23** recites the limitation(s) "...**mobile IP procedure**..." in line 3 of the claim, "...**predetermined radio access network standard**..." in line(s) 4-5 of the claim, and "...**SRNC relocation procedure**..." in line 10 of the claim.

c. Dependent claims **24-27**, also recites the limitation(s) "...**mobile IP procedure**..." and/or "...**SRNC relocation procedure**..." as recited in the dependent claim 22.

Regarding **claims 22-27**, the applicant appears to be relying on and claiming standard procedures to provide novelty. The applicant is advised to review the subject matter of the specification (see pg. 2, 2nd paragraph; pg. 10, 2nd paragraph; pg. 29, 3rd paragraph; pg. 32, 3rd paragraph; pg. 36, 4th paragraph), which states 3GPP. For example, applicant in claim 22 recites the limitation "...**predetermined radio access network standard**..." without referencing a particular version (e.g., predetermined version or date). Another example, applicant in claim 22 recites the limitation "...**mobile IP procedure**..." without providing the steps of the procedure. The Examiner respectfully requests the applicant to provide page(s), line(s), and figure(s) of the instant application that **supports AND clearly define** the limitation(s) of the claim(s) and/or any supportive comment(s) to help clarify and resolve this issue(s). Therefore, the objections as applied above (also, see action mailed on 13 July 2005), are hereby maintained.

4. This list of examples is not intended to be exhaustive. The Examiner respectfully requests the applicant to review all claims and clarify the issues as listed above as well as any other issue(s) that are not listed.

Specification

5. The objections applied to the specification are withdrawn, as the proposed specification correction is approved.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15, 18, 20, 22, 25, and **27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Lee (US 6,539,225 B1)**.

Regarding **claim 15**, Chen discloses a method of performing a handoff when a mobile host (MH) which reads on the claimed "mobile terminal equipment" is moving from a base station (BS1) which reads on the claimed "previous foreign agent" to a base station (BS2) which reads on the claimed "new foreign agent" in a mobile IP network (see Figs. 1 and 6), the method comprising the steps of:

when starting a handoff, performing a regional registration of the mobile terminal equipment (MH) at a home agent so as to doubly register an address of the mobile terminal equipment (MH) by the previous foreign agent (BS1) and the new foreign agent (BS2) (see pg. 442, left col., lines 18-38, 47-51; pg. 442, right col., lines 9-13; Fig. 6), where the mobile

host (MH) has an established connection registered between both base stations (BS1, BS2) during handoff for the home agent to multicast and tunnel packets to the base stations (BS1, BS2);

determining whether an IP packet is received by said home agent during said handoff is a real-time IP packet (e.g., real-time packet) or a non-real-time IP packet (see pg. 440, left col., lines 33-48; pg. 441, left col., lines 27-28; pg. 442, left col., lines 42-62; pg. 444, left col., lines 4-8; Fig. 6), where the real-time traffic is routed to the mobile host while registered with both base stations in which the datagram has a bit field to indicate the packet is real-time or non-real-time packet;

bicasting (e.g., multicast) from said home agent a real-time IP packet received by said home agent during said handoff to both the registered previous foreign agent (BS1) and the registered new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-44; pg. 442, left col., line 59 - right col., line 15; pg. 444, left col., lines 4-8; Fig. 6), where packets that are the real-time traffic are multicasted;

buffering at the home agent a non-real-time IP packet received by said home agent during said handoff (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered; and

transferring a buffered non-real-time IP packet received during said handoff from the home agent to the foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 20-28, 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in which packets for the mobile host (MH) are tunneled to the base station (BS2). Chen does not specifically disclose having the feature when the handoff is completed,

updating the regional registration at the home agent so only the new foreign agent is registered. However, the examiner maintains that the feature when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered was well known in the art, as taught by Lee.

In the same field of endeavor, Lee discloses the feature when the handoff is completed, updating the regional registration at the home agent (26) so only the new foreign agent (34) is registered (see col. 5, line 53 - col. 6, line 29; Figs. 1-2, 3 "ref. S6"), where the mobile wireless node (14) is deregistered from the old foreign agent (28) when handoff is completed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee to have the feature when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered, in order to provide seamless data network telecommunication service to a mobile wireless node during mobile wireless call handoff from a first radio base station to second radio base station, as taught by Lee (see col. 2, lines 34-39).

Regarding **claim 18**, the combination of Chen and Lee discloses every limitation claimed, as applied above (see claim 15), in addition Chen further discloses the method according to claim 15, wherein said home agent determines whether or not an IP packet destined for said mobile terminal equipment (MH) is of real-time traffic (1) based on information on a header of the IP packet (see pg. 441, left col., lines 25-29; pg. 442, left col., lines 20-27; Fig. 4), where the packet has a packet type field that indicates that the packet is a real-time packet.

Regarding **claim 20**, the combination of Chen and Lee discloses every limitation claimed, as applied above (see claim 15), in addition Chen further discloses the handoff method according to claim 15, wherein the home agent determines whether or not an IP packet destined for said mobile terminal equipment (MH) is of real-time (1) traffic based on information on a header of the IP packet, which is placed in a payload of the IP packet (see pg. 441, left col., lines 25-29; pg. 442, left col., lines 20-27; pg. 439, right col., lines 50-53; Figs. 2, 4), where the packet has a packet type field that indicates that the packet is a real-time packet.

Regarding **claim 22**, the combination of Chen and Lee discloses every limitation claimed, as applied above (see claim 15), in addition Chen further discloses the method according to claim 15, further comprising:

performing a mobile IP procedure (see pg. 439, left column, lines 16-41; pg. 442, left column, lines 13-34,47-53; Figs. 1 and 6),

wherein said mobile IP network is a wireless network which reads on the claimed "cellular phone network" in accordance with predetermined Radio Access Network standard corresponding to said mobile IP procedure, said mobile terminal equipment (MH) is a mobile host (MH) which reads on the claimed "cellular phone", and each of said new and the previous foreign agents (BS1, BS2) is a base station (BS1) which reads on the claimed "radio network control unit" that can give and receive an authority to control said cellular phone (MH), as a handoff, according to an SRNC relocation procedure (see pg. 439, left column, lines 16-41; pg. 442, left column, lines 13-34,47-53; Figs. 1 and 6), where the wireless network environment allows for the mobile host to communicate via a wireless link under

control of base stations as the mobile host moves between cells in which the SRNC relocation procedure would be inherent.

Regarding **claim 25**, the combination of Chen and Lee discloses every limitation claimed, as applied above (see claim 22), in addition Chen further discloses the method according to claim 22, wherein said radio network control unit (BS2) detects a start time and end time of the handoff according to an SRNC relocation procedure, and, when said cellular phone (MH) can establish communication according to mobile IP, notifies said cellular phone (MH) of the start time and end time of the handoff according to the mobile IP procedure (see pg. 442, left column, lines 29-34,47-51; Fig. 6), where the base station (BS1) establishes a connection to the mobile host to initiate the handing off of the mobile host to another base station (BS2) in which upon completion or end of the handoff the mobile host will be associated with only base station (BS2).

Regarding **claim 27**, the combination of Chen and Lee discloses of the handoff method according to claim 22, wherein after a plurality of radio network control units (BS1) have accommodated said cellular phone (MH), a previous one of the plurality of radio network control units (BS1) assumes that an SRNC relocation procedure generated after a predetermined transfer of an authority to control the cellular phone (MH) is a handoff procedure, so as to detect the start time and end time of the handoff (see pg. 442, left column, lines 29-34,47-53; pg. 442, right column, lines 9-13; Fig. 6), where the mobile host (MH) moves from one base station (BS1) to another base station (BS2) to have the control changed between the base stations in which the SRNC relocation procedure would be inherent.

Claim 16, 19, 21, and **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Lee (US 6,539,225 B1)** and **Malki et al.** (hereinafter Malki) (**US 2001/0046223 A1**).

Regarding **claim 16**, Chen discloses a method of performing a handoff when a mobile host (MH) which reads on the claimed "mobile terminal equipment" is moving from a base station (BS1) which reads on the claimed "previous foreign agent" to a base station (BS2) which reads on the claimed "new foreign agent" in a mobile IP network (see Figs. 1 and 6), the method comprising the steps of:

when starting a handoff, performing a regional registration of the mobile terminal equipment (MH) at a agent (e.g., home agent) so as to doubly register an address of the mobile terminal equipment (MH) by the previous foreign agent (BS1) and the new foreign agent (BS2) (see pg. 442, left col., lines 18-38, 47-51; pg. 442, right col., lines 9-13; Fig. 6), where the mobile host (MH) has an established connection registered between both base stations (BS1, BS2) during handoff for the home agent to tunnel packets to the base stations (BS1, BS2);

determining whether an IP packet received by said agent (e.g., home agent) during said handoff is of real-time IP packet (e.g., real-time packet) or a non-real-time IP packet (see pg. 440, left col., lines 33-48; pg. 441, left col., lines 27-28; pg. 442, left col., lines 42-62; Fig. 6), where the real-time traffic is routed to the mobile host while registered with both base stations in which the datagram has a bit field to indicate the packet is real-time or non-real-time packet,

bicasting (e.g., multicast) from said agent a real-time IP packet received by said gateway foreign agent during said handoff to both registered previous foreign agent (BS1) and the registered new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-44; pg. 442, left col., line 59 - right col., line 15; pg. 444, left col., lines 4-8; Fig. 6), where packets that are the real-time traffic are multicasted, and

buffering at the agent a non-real-time IP packet received by said home agent during said handoff (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered; and

transferring a buffered non-real-time IP packet received during said handoff from the agent to the new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 20-28, 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in which packets for the mobile host (MH) are tunneled to the base station (BS2). Chen does not specifically disclose having the features when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered; hierarchical mobile IP network; gateway foreign agent; bicasting from said gateway foreign agent. However, the examiner maintains that the feature when the handoff is completed, requesting updating of the regional registration to the agent so as to perform the regional registration only for the new foreign agent was well known in the art, as taught by Lee.

Lee further discloses the feature when the handoff is completed, updating the regional registration at the agent (26, e.g., home agent) so only the new foreign agent (34) is

registered (see col. 5, line 53 - col. 6, line 29; Figs. 1-2, 3 "ref. S6"), where the mobile wireless node (14) is deregistered from the old foreign agent (28) when handoff is completed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee to have the feature when the handoff is completed, updating the regional registration at the home agent so only for the new foreign agent is registered, in order to provide seamless data network telecommunication service to a mobile wireless node during mobile wireless call handoff from a first radio base station to second radio base station, as taught by Lee (see col. 2, lines 34-39). The combination of Chen and Lee does not specifically disclose having the features hierarchical mobile IP network; gateway foreign agent; bicasting from said gateway foreign agent. However, the examiner maintains that the features hierarchical mobile IP network; gateway foreign agent; bicasting from said gateway foreign agent was well known in the art, as taught by Malki.

In the same field of endeavor, Malki discloses the features hierarchical mobile IP network (see pg. 3, [0031]; Fig. 3), where the mobile network provides an N-level tree hierarchy;

mobile anchor point (MAP, 375) which reads on the claimed "gateway foreign agent" (see pg. 3, [0030]; Fig. 3);

bicasting from said gateway foreign agent (MAP, 375) (see pg. 7-8, [0054]; pg. 8, [0055, 0057]; pg. 3, [0030]; Figs. 3 and 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Malki to have the

features hierarchical mobile IP network; gateway foreign agent; bicasting from said gateway foreign agent, in order to provide hierarchical mobility management for wireless networks, as taught by Malki (see pg. 2, 0013).

Regarding **claim 19**, the combination of Chen and Lee discloses the limitations claimed, as applied above (see claim 16), in addition Chen further discloses the method according to claim 16, wherein said home agent determines whether or not an IP packet destined for said mobile terminal equipment (MH) is of real-time traffic (1) based on information on a header of the IP packet (see pg. 441, left col., lines 25-29; pg. 442, left col., lines 20-27; Fig. 4), where the packet has a packet type field that indicates that the packet is a real-time packet. The combination of Chen and Lee does not specifically disclose having the feature gateway foreign agent. However, the examiner maintains that the feature gateway foreign agent was well known in the art, as taught by Malki.

Malki further discloses the feature mobile anchor point (MAP, 375) which reads on the claimed "gateway foreign agent" (see pg. 3, [0030-0031]; pg. 7, [0051]; Fig. 3), where the MAP (375) provides the mobile node (305) with an attachment and/or access to a foreign network which allows for the routing of packets.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Malki to have the feature gateway foreign agent, in order to provide hierarchical mobility management for wireless networks, as taught by Malki (see pg. 2, 0013).

Regarding **claim 21**, the combination of Chen and Lee discloses the limitations claimed, as applied above (see claim 16), in addition Chen further discloses the method

according to claim 16, wherein the agent (e.g., home agent) determines whether or not an IP packet destined for said mobile terminal equipment (MH) is of real-time traffic (1) based on information on a header of the IP packet, which is placed in a payload of the IP packet (see pg. 441, left col., lines 25-29; pg. 442, left col., lines 20-27; pg. 439, right col., lines 50-53; Figs. 2, 4), where the packet has a packet type field that indicates that the packet is a real-time packet. The combination of Chen and Lee does not specifically disclose having the feature gateway foreign agent. However, the examiner maintains that the feature gateway foreign agent was well known in the art, as taught by Malki.

Malki further discloses the feature mobile anchor point (MAP, 375) which reads on the claimed "gateway foreign agent" (see pg. 3, [0030-0031]; pg. 7, [0051]; Fig. 3), where the MAP (375) provides the mobile node (305) with an attachment and/or access to a foreign network which allows for the routing of packets.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Malki to have the feature gateway foreign agent, in order to provide hierarchical mobility management for wireless networks, as taught by Malki (see pg. 2, 0013).

Regarding **claim 23**, the combination of Chen, Lee, and Malki discloses every limitation claimed, as applied above (see claim 16), in addition Chen further discloses the method according to claim 16, further comprising:

performing a mobile IP procedure (see pg. 439, left column, lines 16-41; pg. 442, left column, lines 13-34,47-53; Figs. 1 and 6),

wherein the mobile IP network is a wireless network which reads on the claimed "cellular phone network" in accordance with a predetermined Radio Access Network standard corresponding to said mobile IP procedure, said mobile terminal equipment (MH) is a mobile host (MH) which reads on the claimed "cellular phone", and each of said new and the previous foreign agents (BS1, BS2) is a base station (BS1) which reads on the claimed "radio network control unit" that can give and receive an authority to control said cellular phone (MH), as a handoff, according to an SRNC relocation procedure (see pg. 439, left column, lines 16-41; pg. 442, left column, lines 13-34,47-53; Figs. 1 and 6), where the wireless network environment allows for the mobile host to communicate via a wireless link under control of base stations as the mobile host moves between cells in which the SRNC relocation procedure would be inherent.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Lee (US 6,539,225 B1)** and **Applicant's admitted Prior Art** (hereinafter Prior Art) (Description of Prior Art).

Regarding **claim 17**, Chen discloses a method of performing a handoff when a mobile host (MH) which reads on the claimed "mobile terminal equipment" is moving from a base station (BS1) which reads on the claimed "previous foreign agent" to a base station (BS2) which reads on the claimed "new foreign agent" in a mobile IP network (see Figs. 1 and 6), the method comprising the steps of:

when starting a handoff, performing a regional registration of the mobile terminal equipment (MH) at a home agent so as to doubly register an address of the mobile terminal equipment (MH) by the previous foreign agent (BS1) and the new foreign agent (BS2) (see pg. 442, left col., lines 18-38, 47-51; pg. 442, right col., lines 9-13; Fig. 6), where the mobile host (MH) has an established connection registered between both base stations (BS1, BS2) during handoff for the home agent to tunnel packets to the base stations (BS1, BS2);

determining whether an IP packet is received by said home agent during said handoff is a real-time IP traffic (e.g., real-time packet) or a non-real-time IP packet (e.g., non-real-time packet) (see pg. 440, left col., lines 33-48; pg. 441, left col., lines 27-28; pg. 442, left col., lines 42-62; Fig. 6), where the real-time traffic is routed to the mobile host while registered with both base stations in which the datagram has a bit field to indicate the packet is real-time or non-real-time packet;

bicasting (e.g., multicast) from said home agent a real-time IP packet received by said home agent during said handoff to both the registered previous foreign agent (BS1) and the registered new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-44; pg. 442, left col., line 59 - right col., line 15; pg. 444, left col., lines 4-8; Fig. 6), where packets that are the real-time traffic are multicasted;

buffering at the previous foreign agent (BS1) a non-real-time IP packet received by said home agent during said handoff (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in the base station's (BS1) buffers;

transferring a non-real-time IP packet from the previous foreign agent (BS1) to the new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 20-28, 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in which packets for the mobile host (MH) are tunneled to the base station (BS2). As a note, the new base station receives a registration reply from the home agent which indicates the mobile host is registered per se as part of the handoff completion procedures. Chen does not specifically disclose having the features when the handoff is completed, transferring a non-real-time IP packet; when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered. However, the examiner maintains that the feature when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered was well known in the art, as taught by Lee.

Lee further discloses the feature when the handoff is completed, updating the regional registration at the home agent (26) so only for the new foreign agent (34) is registered (see col. 5, line 53 - col. 6, line 29; Figs. 1-2, 3 "ref. S6"), where the mobile wireless node (14) is deregistered from the old foreign agent (28) when handoff is completed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee to have the features when the handoff is completed, updating the regional registration at the home agent so only the new foreign agent is registered, in order to provide seamless data network telecommunication service to a mobile wireless node during mobile wireless call handoff from a first radio base station to second radio base station, as taught by Lee (see col. 2, lines 34-39). The combination of Chen and Lee does not specifically disclose having the feature when the

handoff is completed, transferring a non-real-time IP packet. However, the examiner maintains that the feature when the handoff is completed, transferring a non-real-time IP packet was well known in the art, as taught by Prior Art.

In the same field of endeavor, Prior Art discloses the feature when the handoff is completed, transferring a non-real-time IP packet (see pg. 6, lines 1-15; Figs. 17A-B), where the IP packets are buffered and forwarded.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Prior Art to have the feature when the handoff is completed, transferring a non-real-time IP packet, in order to prevent packet loss during handoff, as taught by Prior Art (see pg. 5, line 6).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Lee (US 6,539,225 B1)** as applied to claim 22 above, and further in view of **Zhang et al.** (hereinafter Zhang) (**US 6,741,575 B1**).

Regarding **claim 24**, the combination of Chen and Lee fails to disclose having the feature wherein said radio network control unit piggybacks a mobile IP message onto a control message according to the SRNC relocation procedure. However, the examiner maintains that the feature wherein said radio network control unit piggybacks a mobile IP message onto a control message according to the SRNC relocation procedure was well known in the art, as taught by Zhang.

In the same field of endeavor, Zhang discloses the feature wherein said radio port controller unit (106) which reads on the claimed "radio network control unit" piggybacks a mobile IP message onto a control message according to the SRNC relocation procedure (see col. 10, lines 47-62; Figs. 1, 3, 5A-B, 8B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Zhang to have the feature wherein said radio network control unit piggybacks a mobile IP message onto a control message according to the SRNC relocation procedure, in order to provide a network architecture and a set of design guidelines for achieving seamless integration of cellular networks with the global Internet by supporting mobile and multicast IP services in cellular networks, as taught by Zhang (see col. 4, lines 3-7).

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Lee (US 6,539,225 B1)** as applied to claim 22 above, and further in view of **Boudreaux (US 6,466,556 B1)**.

Regarding **claim 26**, the combination of Chen and Lee discloses every limitation claimed, as applied above (see claim 22), in addition Chen further discloses wherein said radio network control unit (BS1) detects a start time and end time of the handoff according to an SRNC relocation procedure (see pg. 442, left column, lines 28-33,47-53; pg. 442, right column, lines 9-13; Fig. 6), where the mobile host (MH) is in the process of starting handover from one base station (BS1) and another base station (BS2) and end when handoff

is completed in which the mobile host is registered to a base station. The combination of Chen and Lee fails to disclose having the feature when the cellular phone cannot establish communication according to mobile IP, notifies the cellular of the start time and end time of the handoff according to the SRNC relocation procedure. However, the examiner maintains that the feature when the cellular phone cannot establish communication according to mobile IP, notifies the cellular of the start time and end time of the handoff according to the SRNC relocation procedure was well known in the art, as taught by Boudreaux.

In the same field of endeavor, Boudreaux teaches having the feature when the user equipment (140) which reads on the claimed "cellular phone" cannot establish communication according to mobile IP, notifies the cellular phone of the start time and end time of the handoff according to the SRNS relocation which reads on the claimed "SRNC relocation procedure" (see col. 5, lines 44-50; col. 5, line 59 - col. 6, line 10; col. 7, lines 4-13; Figs. 3-4), where the movement of the UE (140) operates according to SRNS relocation. The UE (140) does not have connectivity during the hard handover due to the break in the communication link in which the link is reconnected after break to another RNS to provide the UE with an established communication link.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Boudreaux to have the feature when the cellular phone cannot establish communication according to mobile IP, notifies the cellular of the start time and end time of the handoff according to the SRNC relocation procedure, in order to keep packets flowing for as long as possible during the

handover procedure either with a very small interruption or no interruption of flow, as taught by Boudreaux (see col. 5, lines 15-25).

Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (hereinafter Chen) ("**Some Mechanisms To Improve TCP/IP Performance Over Wireless and Mobile Computing Environment**", **July 04, 2000**) in view of **Malki et al.** (hereinafter Malki) (**US 2001/0046223 A1**) and **Applicant's admitted Prior Art** (hereinafter Prior Art) (Description of Prior Art).

Regarding **claim 28**, Chen discloses an agent apparatus, performing as a home agent, for transferring IP packets destined for a mobile terminal equipment (MH) in a mobile IP network, to which mobile terminal equipment (MH) is moving (see pg. 442, left col., lines 20-27; Figs. 1 and 6), the agent apparatus comprising:

a means (e.g., home agent) for, upon receiving during a handoff an IP packet destined for the mobile terminal equipment when the mobile terminal equipment (MH) is doubly registered to a previous foreign agent (BS1) and new foreign agent (BS2) during said handoff, determining whether the IP packet is a real-time IP packet or a non-real-time IP packet (see pg. 440, left col., lines 33-48; pg. 441, left col., lines 27-28; pg. 442, left col., lines 42-62; Fig. 6), where the real-time traffic is routed to the mobile host while registered with both base stations in which the datagram has a bit field to indicate the packet is real-time packet;

a means (e.g., home agent) for bicasting (e.g., multicast) a real-time IP packet (1) received by said agent apparatus during said handoff from the agent apparatus to both the

registered previous foreign agent (BS1) and the registered new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42 - right col., line 15; pg. 444, left col., lines 4-8; Figs. 4 and 6), where packets that are the real-time traffic are multicasted and the packets of non-real-time traffic are buffered;

a means for buffering at said agent apparatus a non-real-time IP packet (0) received by said agent during said handoff (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42 - right col., line 15; pg. 444, left col., lines 4-8; Figs. 4 and 6), where packets that are the real-time traffic are multicasted and the packets of non-real-time traffic are buffered; and

a means (e.g., home agent, BS1) for, transferring a buffered non-real-time IP packet (0) from the agent apparatus to the new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 20-28, 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in which packets for the mobile host (MH) are tunneled to the base station (BS2). As a note, the new base station receives a registration reply from the home agent which indicates the mobile host is registered per se as part of the handoff completion procedures. Chen does not specifically disclose having the features gateway foreign agent; a means for, when the handoff is completed, transferring a buffered non-real-time IP packet. However, the examiner maintains that the feature gateway foreign agent was well known in the art, as taught by Malki.

Malki further discloses the feature mobile anchor point (MAP, 375) which reads on the claimed "gateway foreign agent" (see pg. 3, [0030-0031]; pg. 7, [0051]; Fig. 3), where the MAP (375) provides the mobile node (305) with an attachment and/or access to a foreign network which allows for the routing of packets.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Malki to have the feature gateway foreign agent, in order to provide hierarchical mobility management for wireless networks, as taught by Malki (see pg. 2, 0013). The combination of Chen and Malki does not specifically disclose having the feature a means for, when the handoff is completed, transferring a buffered non-real-time IP packet. However, the examiner maintains that the feature a means for, when the handoff is completed, transferring a buffered non-real-time IP packet was well known in the art, as taught by Prior Art.

Prior Art further discloses the feature a means for, when the handoff is completed, transferring a buffered non-real-time IP packet (see pg. 6, lines 1-15; Figs. 17A-B), where the IP packets are buffered and forwarded.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Malki with Prior Art to have the feature a means for, when the handoff is completed, transferring a buffered non-real-time IP packet, in order to prevent packet loss during handoff, as taught by Prior Art (see pg. 5, line 6).

Regarding **claim 29**, Chen discloses an agent apparatus, performing as a home agent, for transferring IP packets destined for a mobile terminal equipment (MH) in a mobile IP network, to which mobile terminal equipment (MH) is moving (see pg. 442, left col., lines 20-27; Figs. 1 and 6), the agent apparatus comprising:

a determining device (e.g., home agent) configured to, upon receiving during a handoff an IP packet destined for the mobile terminal equipment (MH) when the mobile terminal

equipment (MH) is doubly registered to a previous foreign agent (BS1) and new foreign agent (BS2) during said handoff, determine whether the IP packet is a real-time IP packet (1) or a non-real-time IP packet (0) (see pg. 440, left col., lines 33-48; pg. 441, left col., lines 27-28; pg. 442, left col., lines 42-62; Fig. 6), where the real-time traffic is routed to the mobile host while registered with both base stations in which the datagram has a bit field to indicate the packet is real-time packet;

a bicasting device (e.g., home agent) configured to bicast (e.g., multicast) a real-time IP packet (1) received by said agent apparatus during said handoff from the agent apparatus to both the registered previous foreign agent (BS1) and the registered new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42 - right col., line 15; pg. 444, left col., lines 4-8; Figs. 4 and 6), where packets that are the real-time traffic are multicasted; and

a buffer (e.g., sending and receiving buffer) configured to buffer a non-real-time IP packet (0) received by said agent apparatus during said handoff (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 42 - right col., line 15; pg. 444, left col., lines 4-8; Figs. 4 and 6), where the packets of non-real-time traffic are buffered; and

a transfer device (e.g., home agent, BS1) configured to, transfer the buffered non-real-time IP packet from the agent apparatus to the new foreign agent (BS2) (see pg. 440, left col., lines 33-48; pg. 442, left col., lines 20-28, 42-58; pg. 444, left col., lines 4-8; Fig. 6), where the packets of non-real-time traffic are buffered in which packets for the mobile host (MH) are tunneled to the base station (BS2). As a note, the new base station receives a registration reply from the home agent which indicates the mobile host is registered per se as part of the handoff completion procedures. Chen does not specifically disclose having the features

gateway foreign agent; when the handoff is completed, transfer the buffered non-real-time IP packet. However, the examiner maintains that the feature gateway foreign agent was well known in the art, as taught by Malki.

Malki further discloses the feature mobile anchor point (MAP, 375) which reads on the claimed "gateway foreign agent" (see pg. 3, [0030-0031]; pg. 7, [0051]; Fig. 3), where the MAP (375) provides the mobile node (305) with an attachment and/or access to a foreign network which allows for the routing of packets.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Lee with Malki to have the feature gateway foreign agent, in order to provide hierarchical mobility management for wireless networks, as taught by Malki (see pg. 2, 0013). The combination of Chen and Malki does not specifically disclose having the feature when the handoff is completed, transfer the buffered non-real-time IP packet. However, the examiner maintains that the feature when the handoff is completed, transfer the buffered non-real-time IP packet was well known in the art, as taught by Prior Art.

Prior Art further discloses the feature when the handoff is completed, transfer the buffered non-real-time IP packet (see pg. 6, lines 1-15; Figs. 17A-B), where the IP packets are buffered and forwarded.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Chen and Malki with Prior Art to have the feature when the handoff is completed, transfer the buffered non-real-time IP packet, in order to prevent packet loss during handoff, as taught by Prior Art (see pg. 5, line 6).

Response to Arguments

7. Applicant's arguments filed 13 December 2005 have been fully considered but they are not persuasive.

The Examiner respectfully disagrees with applicant's arguments as the applied reference(s) provide more than adequate support and to further clarify (see the above claims and comments in this section).

8. Regarding **claims 22-27**, the applicant appears to be relying on and claiming standard procedures to provide novelty. The applicant is advised to review the subject matter of the specification (see pg. 2, 2nd paragraph; pg. 10, 2nd paragraph; pg. 29, 3rd paragraph; pg. 32, 3rd paragraph; pg. 36, 4th paragraph), which states 3GPP. For example, applicant in claim 22 recites the limitation "...**predetermined radio access network standard**..." without referencing a particular version (e.g., predetermined version or date). Another example, applicant in claim 22 recites the limitation "...**mobile IP procedure**..." without providing the steps of the procedure. The Examiner respectfully requests the applicant to provide page(s), line(s), and figure(s) of the instant application that **supports AND clearly define** the limitation(s) of the claim(s) and/or any supportive comment(s) to help clarify and resolve this issue(s). Therefore, the objections as applied above (also, see action mailed on 13 July 2005), are hereby maintained.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Willie J. Daniel, Jr. whose telephone number is (571) 272-7907. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ERIKA A. GARY
PRIMARY EXAMINER

WJD,JR
20 July 2006